AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application:

1. (Currently amended): In an optical fiber communications system including a first node coupled to a second node by an optical fiber, a method for transmitting overhead information from the first node to the second node, the method comprising:

generating a control channel containing the overhead information, the overhead information comprising digital data;

frequency division multiplexing the control channel with a plurality of electrical low-speed channels to form an electrical high-speed channel;

converting the electrical high-speed channel from electrical to optical form to form an optical high-speed channel, wherein each of the control channel and the electrical low-speed channels is allocated a different frequency band within the optical high-speed channel; and

transmitting the optical high-speed channel over the optical fiber to the second node.

2. (Original): The method of claim 1 wherein, within the optical high-speed channel, the control channel is more robust than the low-speed channels to impairments in the optical fiber.

3. (Currently amended): The method of claim 1 wherein a frequency band for the control channel ~~has a~~is narrower than a frequency ~~bandwidth than~~band for the low-speed channels.

4. (Original): The method of claim 1 wherein, in the electrical high-speed channel, the control channel is located at a frequency lower than that of the electrical low-speed channels.

5. (Original): The method of claim 1 wherein the control channel has a data rate of approximately 2 Mbps.

6. (Original): The method of claim 1 wherein the overhead information includes software to be loaded onto the second node.

7. (Original): The method of claim 1 wherein the overhead information includes information for controlling the second node.

8. (Original): The method of claim 1 wherein the overhead information includes information for configuring the second node.

9. (Original): The method of claim 1 wherein the overhead information includes diagnostic information from testing one of the nodes.

10. (Original): The method of claim 1 wherein the overhead information includes metrics from measuring a performance of a fiber link between the first node and the second node.

11. (Original): The method of claim 1 wherein the overhead information includes information used for fault isolation.

12. (Original): The method of claim 1 wherein the overhead information includes information used to establish a fiber link between the first node and the second node.

13. (Original): The method of claim 1 further comprising:

receiving the optical high-speed channel;

converting the optical high-speed channel from optical to electrical form to recover the electrical high-speed channel; and

frequency division demultiplexing the control channel from the electrical high-speed channel.

14. (Currently amended): The method of claim 1 further comprising:

generating a second control channel containing second overhead information, the second overhead information comprising digital data;

frequency division multiplexing the second control channel with a second plurality of electrical low-speed channels to form a second electrical high-speed channel;

converting the second electrical high-speed channel from electrical to optical form to form a second optical high-speed channel, wherein each of the second control channel and the second electrical low-speed channels is allocated a different frequency band within the second optical high-speed channel; and

transmitting the second optical high-speed channel over a second optical fiber from the second node to the first node.

Cont.

15. (Currently amended): An optical fiber communications system for transmitting at least two low-speed channels across the communications system, the communications system comprising:

a first node including:

an FDM multiplexer for combining a control channel with the low-speed channels into an electrical high-speed channel, the control channel containing overhead information that includes digital data; and

an E/O converter coupled to the FDM multiplexer for converting the electrical high-speed channel from electrical to optical form to form an optical high-speed channel, wherein each of the control channel and the electrical low-speed channels is allocated a different frequency band within the optical high-speed channel.

16. (Original): The communications system of claim 14 wherein, within the optical high-speed channel, the control channel is more robust than the low-speed channels to impairments in the optical fiber.

17. (Currently amended): The communications system of claim 14 wherein a frequency band for the control channel ~~has a~~ is narrower than a frequency ~~bandwidth than~~ band for the low-speed channels.

18. (Original): The communications system of claim 14 wherein, in the electrical high-speed channel, the control channel is located at a frequency lower than that of the electrical low-speed channels.

19. (Original): The communications system of claim 14 further comprising:

a second node coupled to the first node by an optical fiber, the second node including:

an O/E converter for converting the optical high-speed channel to the electrical high-speed channel; and

a FDM demultiplexer coupled to the O/E converter for frequency division demultiplexing the control channel from the electrical high-speed channel.

A2 Cont.

20. (Currently amended): The communications system of claim 19 wherein:

the second node further comprises:

an FDM multiplexer for combining a second control channel with second low-speed channels into a second electrical high-speed channel, the second control channel containing overhead information that includes digital data; and

an E/O converter coupled to the FDM multiplexer for converting the second electrical high-speed channel from electrical to optical form to form a second optical high-speed channel, wherein each of the second control channel and the second low-speed channels is allocated a different frequency band within the second optical high-speed channel; and

the first node further comprises:

an O/E converter for converting the second optical high-speed channel to the second electrical high-speed channel; and

a FDM demultiplexer coupled to the O/E converter for frequency division demultiplexing the second control channel from the second electrical high-speed channel.

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